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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/704,733	11/03/2000	Susan D. Allen	FSU-1	7240

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Fleshner & Kim LLP
PO Box 221200
Chantilly, VA 20153-1200

EXAMINER

KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/704,733

Applicant(s)

ALLEN, SUSAN D.

Examiner

Chih-Cheng Glen Kao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 30-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☒ Claim(s) 1-5, 13, 21 and 24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 30-35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 7.

2. Applicant's election with traverse of Group I (claims 1-29) in Paper No. 7 is acknowledged. The traversal is on the ground(s) that subject matter of each designated inventions is sufficiently related that a thorough search for the subject matter of each for the designated inventions would encompass a search for the subject matter of the remaining designated inventions. This is not found persuasive because the remaining designated invention requires selecting illumination pattern parameters, geometrically modeling cross sections, and predicting plane waves, which are not part of the other designated inventions and make the inventions distinct. Furthermore, the product as claimed can be used in a materially different process, such as monitoring throughput in fiber optic communications and data processing.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

3. The information disclosure statement filed 6/21/2002 and 10/31/2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion

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which caused it to be listed. It has been placed in the application file, but information referred to therein has not been considered.

Drawings

4. The drawings are objected to because Figure 1A should be labeled Figure 1 as recited on Page 6, line 7. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

Fig. 13 #130 and 135

Fig. 14, all reference numbers

Fig. 24, #375a and 375b

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The abstract of the disclosure is objected to because the abstract in an application filed under 35 U.S.C. 111 may not exceed 150 words in length. Correction is required. See MPEP § 608.01(b).

Claim Objections

7. Claim 1 is objected to because of the following informalities. In line 6, “the one or more tap structures” is recited. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the “one or more tap structures” will be referred to the “plurality of tap structures” as recited in line 3. Appropriate correction is required.

8. Claims 2-5 are objected to because of the following informalities. In the respective claims, “the predetermined illumination pattern” is recited. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the “predetermined illumination pattern” will be referred to “a predetermined pattern” as recited in claim 1. Appropriate correction is required.

9. Claim 13 is objected to because of the following informalities. In lines 1-2, the phrase “one or more light source comprises” may be grammatically incorrect. To obviate this objection, delete “source comprises” and insert “sources comprise” as exemplified in claim 20, lines 1-2. Appropriate correction is required.

10. Claim 13 is objected to because of the following informalities. The claim recites “the one or more light source comprises a plurality of selectively controllable light sources”. This is inconsistent in that one light source cannot comprise a plurality of light sources. This objection may be obviated by inserting “one or” before “a” in line 2 and as analogously exemplified in

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claim 20. For purposes of examination, the claim will be treated as such. Appropriate correction is required.

11. Claim 21 is objected to because of the following informalities. In lines 1-2, the phrase "one or more light source comprise" may be grammatically incorrect. To obviate this objection, delete "source" and insert "sources" as exemplified in claim 20, lines 1-2. Appropriate correction is required.

12. Claim 24 is objected to because of the following informalities. In lines 3-4, "the one or more optical fiber or waveguides" is recited. There is insufficient antecedent basis for this limitation in the claim. This objection may be obviated by deleting "other" in line 2. Appropriate correction is required.

13. Claim 24 is objected to because of the following informalities. In lines 3-4, "the one or more tap structures" is recited. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the Examiner will refer to the continuous tap structure. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1, 3-7, 10, 12, 13, 15, 20, 24, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (US Patent 5500913) in view of Freier et al. (US Patent 6301418).

15. Regarding claims 1, 3-7, 10, 12, 13, 15, 20, 27, and 28, Allen et al. discloses an apparatus comprising an optical fiber (Fig. 10, #700) for receiving light (Fig. 10, "light") reflected through (Fig. 5) a plurality of tap structures in an array along the length (Fig. 10, #600a, 600b1, 600b2, 600b3, and 600c) with one or more controllable laser light sources to provide at least partially coherent light (inherent in a laser) in another (col. 5, lines 50-55) to provide the light, which inherently contains photons, further comprising a reflective surface reflecting light in a direction substantially opposite to the original direction of travel of light (Fig. 5).

However, Allen et al. does not disclose creating a predetermined pattern generally in the shape of an arc, cylinder, or conical, by asymmetrical tap structures.

Freier et al. teaches creating a predetermined pattern generally in the shape of an arc, cylinder, (Fig. 7, #118), or conical (Fig. 6, #118), by asymmetrical tap structures (Fig. 3).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the arc or cylinder pattern of Freier et al. with the apparatus of Allen et al., since one would be motivated to have these patterns for light extraction purposes such as display signs or lamps for people to see as implied from Freier et al. (col. 1, lines 25-30).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the asymmetrical tap structures of Freier et al. with the apparatus of

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Allen et al., since these elements, the tap structure and asymmetrical tap structure, are art-recognized equivalents in that they both create light emissions. Therefore, one of ordinary skill in the art would have found it obvious to substitute a tap structure for an asymmetrical tap structure. One would be motivated to use asymmetrical tap structures, to create the structures quickly by roughening as implied from Freier et al. (col. 4, lines 25-32) rather than another method such as laser ablating structures one by one.

16. Regarding claim 24, Allen et al. in view of Freier et al. suggests an apparatus as recited above.

Allen et al. does not disclose a continuous tap structure.

Freier et al. further teaches a continuous tap structure (Fig. 5A).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the continuous tap structure of Freier et al. with the suggested apparatus of Allen et al. in view of Freier et al., since these two elements, the tap structure and continuous tap structure, are art-recognized equivalents as shown by Freier et al. (col. 5, lines 4-6). Therefore, because these two elements are art recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a tap structure for a continuous tap structure. One would be motivated to use a continuous tap structure to increase the scattering of light for better light extraction and emission as implied from Freier et al. (col. 5, lines 15-19).

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17. Claims 2, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. in view of Freier et al. as applied to claim 1 above, and further in view of McGaffigan (US Patent 6031958).

18. Regarding claim 2, Allen et al. in view of Freier et al. suggests an apparatus as recited above.

However, Allen et al. does not disclose creating a predetermined pattern generally spherical in shape.

McGaffigan teaches creating a predetermined pattern generally spherical in shape (Fig. 14A and 14B).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the spherical shape of McGaffigan with the suggested apparatus of Allen et al. in view of Freier et al. since one would be motivated to have these patterns for light extraction purposes such as display signs or lamps for people to see as implied from McGaffigan (col. 12, lines 8-15).

19. Regarding claims 8 and 9, Allen et al. in view of Freier et al. suggests an apparatus as recited above.

However, Allen et al. does not disclose taps extending radially around or continuously circular.

McGaffigan teaches taps extending radially around or continuously circular (Fig. 2, #27).

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It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have taps completely around of McGaffigan with the suggested apparatus of Allen et al. in view of Freier et al. since one would be motivated to use these effects to create an optical illusion interpreting visible light originating from the center rather than the surface of the light pipe as implied from McGaffigan (col. 3, lines 40-47).

20. Claims 11, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. in view of Freier et al. as respectively applied to claim 1 above, and further in view of Imen et al. ("Laser-fabricated fiber-optic taps").

21. Regarding claim 11, Allen et al. in view of Freier et al. suggests an apparatus as recited above.

However, Allen et al. does not disclose a tap with a length larger than width.

Imen et al. teaches a tap with a length larger than width (Fig. 2).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the tap with a length larger than width of Imen et al. with the suggested apparatus of Allen et al. in view of Freier et al. since one would be motivated to optimize the shape to create more directional output as implied from Imen et al. (Page 952, col. 1, first paragraph).

22. Regarding claims 25 and 26, for reasons of being concise, Allen et al. in view of Freier et al. suggests an apparatus as recited above.

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However, Allen et al. does not disclose optimization to 90%.

Imen et al. teaches optimization (Page 952, col. 1).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have optimization of Imen et al. with the suggested apparatus of Allen et al. in view of Freier et al., since one would be motivated to have optimization for more direction output as implied from Imen et al. (Page 952, col. 1).

Secondly, it would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have optimization of Imen et al. with the suggested apparatus of Allen et al. in view of Freier et al., since wherein the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. This is implied from Imen et al. (Page 952, col. 1). One would be motivated to have optimization for more directional output as implied from Imen et al. (Page 952, col. 1)

23. Claims 14, 16-19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. in view of Freier et al. as respectively applied to claims 12, 13, and 27 above, and further in view of Mori (US Patent 4389085).

24. Regarding claim 14, Allen et al. in view of Freier et al. suggests an apparatus as recited above.

However, Allen et al. does not disclose a plurality of light sources having varying illumination powers.

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Mori teaches a plurality of light sources having varying illumination powers (col. 9, lines 28-39).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the plurality of light sources having varying illumination powers of Mori with the suggested apparatus of Allen et al. in view of Freier et al. since one would be motivated to use such a suggested apparatus for an information transmission system such as using color changes to notify workers of starting and ending times as implied from Mori (col. 9, lines 28-39).

25. Regarding claims 16-19 and 29, Allen et al. in view of Freier et al. suggests an apparatus as recited above.

However, Allen et al. does not disclose incoherent light.

Mori teaches incoherent light or sunlight which inherently has visible, infrared, and UV light (Abstract, "sunlight").

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the incoherent light of Mori with the suggested apparatus of Allen et al. in view of Freier et al. since one would be motivated to use advantageously use the incoherent light at a higher degree of efficiency in a lighting system to reach areas where direct access to incoherent light is impossible as implied from Mori (col. 2, lines 34-43).

Note that Kunert (US Patent 5092101) shows that sunlight inherently has visible, infrared, and UV light (col. 5, lines 52-58) in its spectrum.

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26. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. in view of Freier et al. as applied to claim 20 above, and further in view of Izumi et al. (US Patent 5528399).

Allen et al. in view of Freier et al. suggests an apparatus as recited above.

However, Allen et al. does not disclose semiconductor, high power, or light emitting diodes.

Izumi et al. teaches semiconductor, high power, or light emitting diodes (col. 18, lines 22-45).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have various diodes of Izumi et al. with the suggested apparatus of Allen et al. in view of Freier et al. since these elements are art-recognized equivalents in that they are all diodes that emit light. Therefore, because these are art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute one type of diode for another. One would be motivated to use a high power diode for a high output as implied from Izumi et al. (col. 9, lines 20-25). One would be motivated to use a light emitting diode for a lower output (col. 9, lines 20-25). One would be motivated to use a semiconductor laser diode since it is relatively inexpensive (col. 18, lines 23-40).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gk
November 26, 2002



ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800